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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/033,597	12/27/2001	Aleksandra Mojsilovic	909.0045.U1(US)	8791

29683 7590 01/31/2008
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ART UNIT	PAPER NUMBER
2624	

MAIL DATE	DELIVERY MODE
01/31/2008	PAPER

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/033,597
Filing Date: December 27, 2001
Appellant(s): MOJSILOVIC ET AL.

Harry F. Smith (Reg. No. 32,493)
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/26/2007 appealing from the Office action mailed 04/30/2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,915,250	Jain et al.	6-1999

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, and 3-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Jain et al. U.S. Patent No. 5,915,250.

Regarding claim 1, Jain teaches a computer implemented method (FIG. 1A) for determining the semantic meaning of mages, comprising:

deriving a set of perceptual semantic categories (defining and register custom primitives) (abstract) for representing important semantic cues (object's attributes) (abstract) (color, texture, shape, pattern, object) (face) (column 4, lines 1-45) in the human perception of images (column 4, lines 20-25), where each semantic category is modeled through a combination of perceptual features that define the semantics of that category and that discriminate that category from other categories (visual information retrieval system provides modular and framework to define and classify category of object's attributes) (abstract and column 3, lines 60 to column 4, lines 1-10), wherein the perceptual features and their combinations are derived at least in part

through subjective experiments performed with human observers (column 4, lines 21-32; FIG. 1A, elements 102, 104 and 112; column 6, lines 58-61; column 8, lines 32-35; column 11, lines 43-59 and column 18, lines 7-26); and

for each semantic category, forming a set of the perceptual features as a complete feature set CFS (feature vector to store each kind of primitives) (column 5, lines 5-20).

For claim 3, Jain further teaches a method further comprising extracting perceptual features from an input image and applying a perceptually-based metric (a similarity scoring system) to determine the semantic category for that image (abstract).

Referring to claim 4, Jain discloses a method comprising processing the input image to compute the CFS (FIG. 1A, element 112); comparing the input image to each semantic category through the perceptually-based metric that computes a similarity measure between the features used to describe the semantic category and the corresponding features extracted (abstract) from the input image (rank similarity result) (column 12, lines 50-67); and assigning the input image to the semantic category that corresponds to a highest value of the similarity measure (column 12, lines 65 to column 13, line 3).

For claims 5, Jain also discloses a method further comprising computing features from the CFS for images in an image database (FIG. 1A); and generating a distance measure for characterizing a relationship of a selected image to another image in the image database by applying a perceptually-based similarity metric (column 8, lines 10-27).

For claim 6, Jain shows a method where values of the similarity metric computed for images in the image database are subsequently used to search for similar images in the image database (column 9, lines 50-64).

Regarding claim 7, Jain shows a method where values of the similarity metric computed for images in the image database are subsequently used to organize images in the image database (classifying images base on similarity scoring system) (FIG. 5B, elements 280 and 284).

For claim 8, Jain teaches a method where values of the similarity metric computed for images in the image database are subsequently used to display images in the image database in an organized manner (FIG. 4; FIG. 5B, element 294; and column 11, lines 23-39).

Also to claim 9, Jain further teaches a method further comprising defining a subset of features for the selected image or for an image retrieved from the image database, and using the subset of features to refine a search through the image database (searching with specific parameters) (column 4, lines 29-45).

Referring to claim 10, Jain shows a method wherein the image database is located at a remote location and is reachable through a data communications network (FIG. 1B and column 9, lines 10-25).

Also to claim 11, Jain further shows a method wherein the image database is located at a remote location and is reachable through a data communications network, and where the step of characterizing the relationship of the selected image to another image in the image database by applying the perceptually-based similarity metric is accomplished to retrieve an image from the remote image database (FIG. 1B and column 9, lines 10-50).

As for claim 12, Jain also teaches a method wherein the image database is located at a remote location and is reachable through a data communications network, and where the

step of characterizing the relationship of the selected image to another image in the image database by applying the perceptually-based similarity metric is accomplished in conjunction with a text-based search algorithm to retrieve a multi-media object from the remote location (direction communication between databases) (column 9, lines 10-50).

Referring to claim 13, Jain discloses a method wherein to assign a particular semantic category to an image all of a set of Required Features must be present in the image, and at least one of a set of Frequently Occurring Features must be present in the image (fixed/universal or default primitives) (column 8, line 60 and column 16, lines 16-25).

For claim 14, please refer back to claims 1-3 for further teachings and explanations. In addition, Jain teaches a data processing system comprising a data processor, a graphical user interface and a memory to processes the aforementioned limitations (FIG. 1A and column 9, lines 5-50).

For claims 15-24, please refer back to claims 4-13 respectively for further teachings and explanations.

For claim 25, please refer back to claims 1-4 for further teachings and explanations. In addition, Jain teaches a computer program (column 6, lines 15-25) to processes aforementioned limitation and semantic categories being modeled using multidimensional scaling and hierarchical clustering techniques (different ways of querying and classifying images) (FIG. 1A, elements 106 and 108).

For claims 26 - 27, Jain teaches a computer program where as a result of comparing the input image to images stored in the image database one or more most similar

images are identified in the image database (column 12, lines 50-67 and (column 12, lines 65 to column 13, line 3) and display it (FIG. 1B, element 148).

For claim 28, please refer back to claim 14 for further teachings and explanations.

10) Response to Argument

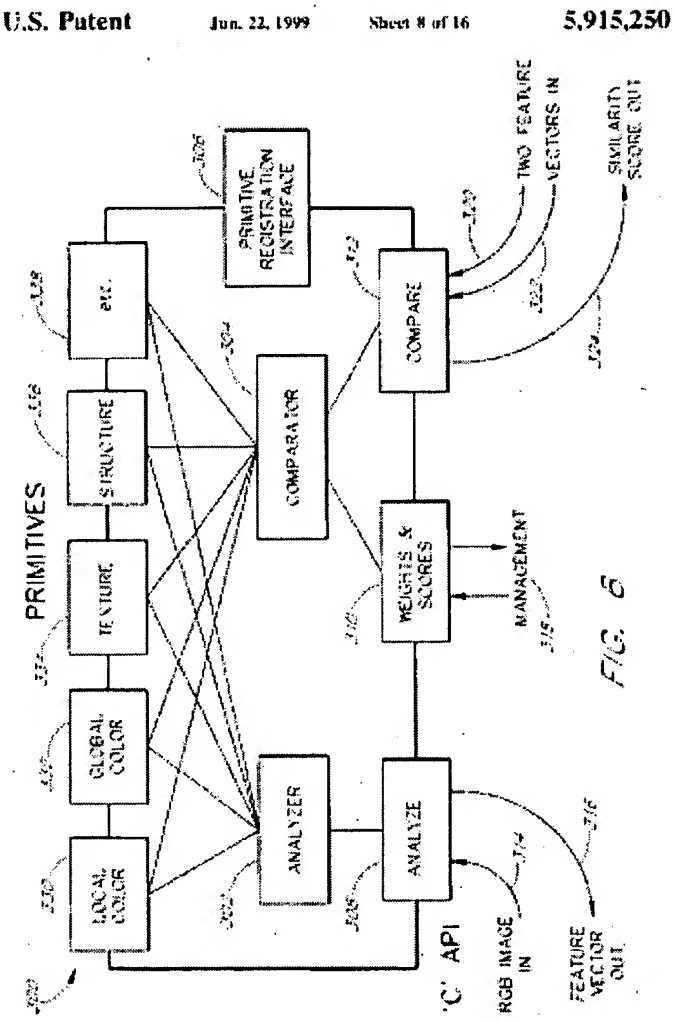
(A) The following discussion relates to the rejection of claims 1 and 3-28 as being unpatentable under 35 U.S.C. 102(b) as being anticipated by Jain et al. U.S. Patent No. 5,915,250 (herein Jain).

1. Appellant's Argument ---- The Appellant argues (pages 8-11 of the Appeal Brief) that Jain does not teach "the perceptual features and their combinations are derived at least in part through subjective experiments performed with human observers".

Examiner's Response ---- The Examiner respectfully disagrees. To better explain the Examiner's ground of rejection, a table's presentation and FIG. 6 of U.S. Patent No. 5,915,250 to Jain et al. ("Jain") are provided below to show rejections of all the features in each limitation of the claim 1:

Limitations	**Art Rejection's Citations (Jain) and explanations**
1. "Deriving a set of perceptual semantic categories"	The Examiner interprets the derivation of primitives such as "local color", "global color", texture …etc. as shown in FIG. 6-see below, "PRIMTIVES" and column 4, lines 1-10.
2. "for representing information semantic cues"	Representing information of the image such as "semantic-rich representation of visually salient characteristics". See column 4, lines 10-15.

3. "in the human perception of images"	Visual information by users of images. See Abstract, lines 1-5; and column 3, lines 20-25;
4. "where each semantic category (as discussed in the table 1.) is modeled through a combination of perceptual features that define the semantics to that category.	Query primitives into features vectors by different metrics such as weighted contributions. See column 8, lines 10-35.
5. "and that discriminate that category from other categories"	Generate different topological spaces for primitives. See column 8, lines 9-11.
6. "wherein the perceptual features"	Color, texture, shape and motion characteristics. See column 3, lines 9-11.
7. "and their combinations are derived **at least in part**" (emphasis added).	The analysis of similarity with respect to visual attributes. See column 6, lines 20-26.
8. "through subjective experiments performed with human observers;"	Column 4, lines 19-40 and column 8, lines 24-35.
9. "For each semantic category, forming a set of the perceptual features a complete feature set CFS"	Base Visual Information Retrieval (VIR) engine and Extensible Engine provide fixed set of primitives and installing new primitives for the VIR engine to update a complete feature set. See column 8, lines 58-63 and column 20, lines 30-40.



Thus, it is clear that Jain teaches "the perceptual features (Color, texture, shape and motion characteristics) (See column 3, lines 9-11) and their combinations are derived at least in part (The analysis of similarity with respect to visual attributes) (See column 6, lines 20-26) through subjective experiments performed with human observers (Column 4, lines 19-40 and column 8, lines 24-35)".

2. Appellant's Argument ---- Regarding claims 4 and 15, the Appellant argues (pages 14 of the Appeal Brief) that Jain does not teach "assigns the input image to the semantic category that corresponds to a highest value of the similarity measure".

Examiner's Response ---- The Examiner respectfully disagrees. Jain teaches a concept of assign (primitives of image are ordered by weights) (column 24, lines 25-30) highest weighted primitive ordered first for in the similarity analysis when processing images (column 24, lines 21-64).

3. Appellant's Argument ---- Regarding claims 6 and 17, the Appellant argues (pages 17 of the Appeal Brief) that Jain does not teach a "similarity metric" is "used to search for similar images in the image database".

Examiner's Response ---- The Examiner respectfully disagrees. Clearly, a concept of similarity score is a similarity metric can be used to search for similar images in an image database. See column 9, lines 50-60. Also, it is disclosed by Jain that similarity is a metric in the art (column 3, lines 50-52). In addition, other metrics are used by Jain are "distance metrics" (column 8, line 8), and topological metrics (column 8, line 27).

4. Appellant's Argument ---- Regarding claims 8, 19 and 27, the Appellant argues (pages 18 of the Appeal Brief) that Jain does not teach "a method where values of the similarity metric computed for images in the image database are subsequently used to display images in the image database in an organized manner" or similar in scope.

Examiner's Response ---- The Examiner respectfully disagrees. Jain teaches a method where values of the similarity metric (similarity score) (column 9, lines 50-60) computed

for images in the image database (column 9, lines 17-40) are subsequently used to display images in the image database in an organized manner (column 9, lines 60-64).

5. Appellant's Argument ---- Regarding claims 9 and 20, the Appellant argues (pages 19 of the Appeal Brief) that Jain does not teach "a method comprising defining a subset of features for the selected image or for an image retrieved from the image database, and using the subject of features to refine a search through the image database" or similar in scope.

Examiner's Response ---- The Examiner respectfully disagrees. Jain teaches a method comprising defining a subset of features for the selected image (specify a property or attribute of the image) (column 4, lines 20-25) or for an image retrieved from the image database, and using the subject of features to refine a search through the image database (query search refinement for browsing) (column 4, lines 33-38).

5. Appellant's Argument ---- Regarding claims 10 and 21, the Appellant argues (pages 20 of the Appeal Brief) that Jain does not teach "a system wherein the image database is located at a remote location and is reachable through a data communications network that is bidirectionally coupled to said data processor through a network interface" or similar in scope.

Examiner's Response ---- The Examiner respectfully disagrees. Jain teaches a system wherein the image database (can be either storage, backup unit or server with backup facility) (FIG. 1B) is located at a remote location and is reachable through a data communications network that is bidirectionally coupled (double headed arrow shows the bidirectionally communication) (FIG. 1B) to said data processor through a network interface (network) (FIG. 1B, element 166). More readings can be found at column 9, lines 10-50.

6. Appellant's Argument ---- Regarding claims 12 and 23, the Appellant argues (pages 21 of the Appeal Brief) that Jain does not teach "a system where the data processor applies the perceptually-based similarity metric to in conjunction with a text-based search algorithm to retrieve a multi-media object from the remote location" or similar in scope.

Examiner's Response ---- The Examiner respectfully disagrees. Jain teaches a system where the data processor (FIG. 1B, element 144) applies the perceptually-based similarity metric (similarity score) (column 6, lines 25-67) to in conjunction with a text-based search algorithm to retrieve a multi-media object from the remote location (textual query attributes such as Keywords to retrieve images or image objects) (column 11, lines 11-21).

7. Appellant's Argument ---- Regarding claims 13, 24 and 28, the Appellant argues (pages 22 of the Appeal Brief) that Jain does not teach "a method wherein to assign a particular semantic category to an image all of a set of Required Features must be present in the image, and at least one of a set of Frequently Occurring Features must be present in the image" or similar in scope.

Examiner's Response ---- The Examiner respectfully disagrees. Jain teaches a method wherein to assign a particular semantic category to an image all of a set of Required Features must be present in the image ("VIR Engine has a stateless architecture in which all of the data about images is managed and stored by the application") (column 6, lines 50-53), and at least one of a set of Frequently Occurring Features must be present in the image (a primitive such as color, shape or texture always exist in the image) (FIG. 6, elements 330, 332, 334, 336 and 338; column 4, lines 5-10).

8. Appellant's Argument ---- Regarding claim 26, the Appellant argues (pages 24 of the Appeal Brief) that Jain does not teach the computer program of claim 25 and thus claim 26 is not anticipated by Jain.

Examiner's Response ---- The Examiner respectfully disagrees. Jain clearly teaches a computer program (application modules) (FIG. 1A; column 6, lines 42-44 and column 28, lines 30-40).

(11) Related Proceeding(s) Appendix

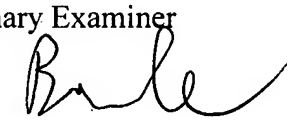
No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Brian Le

Primary Examiner



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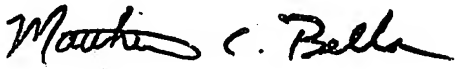
Matthew Bella



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